

NOAA-SSMC-2

Survey September '99

FINAL REPORT

Microbiological Sampling Report

for

National Oceanic & Atmospheric Administration

Sampling Conducted at Building SSMC-2

On September 23 – 27, 1999

Interagency Agreement #: D8H00CO36100

Task: 9903

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Prepared by
US Public Health Service
Division of Federal Occupational Health
Bethesda Central Office

Executive Summary

At the request of the National Oceanic & Atmospheric Administration (NOAA), surface swab and vacuum cassette dust samples were collected from mechanical rooms and occupied areas at Building SSMC-2, located at 1325 East-West Highway, Silver Spring, Maryland. Sampling strategy was developed by Joe Spurgeon, CIH, Ph.D., representing Federal Occupational Health (FOH). Sampling was performed by Dr. Spurgeon and field personnel from Aerosol Monitoring & Analysis, Inc. (AMA) during September 23 - 27, 1999. The objective of this sampling was to determine whether there are any surface fungal, especially for *Stachybotrys chartarum* (SC), contamination at the mechanical rooms and some selective occupied areas.

Sixty-four (64) swabs and 6 cassette dust samples were collected from this facility. Dilution plating and direct plating was conducted on swab and cassette dust samples, respectively.

Stachybotrys chartarum was detected from one of 52 swab samples collected from mechanical rooms. The positive sample was collected from the fresh air supply access panel of the 6th floor.

Using cassette dust samples collected from occupied areas, *Stachybotrys chartarum* was not detected from any samples collected. This fungus was not detected from any of the 12 swabs collected from occupied areas

It is recommended to visually inspect the 6th floor mechanical room for signs of water leakage and/or reservoirs of *Stachybotrys chartarum*.

INTRODUCTION

At the request of the National Oceanic & Atmospheric Administration (NOAA), surface swab, and vacuum cassette dust samples were collected from mechanical rooms and occupied areas at Building SSMC-2, located at 1325 East-West Highway, Silver Spring, Maryland. Sampling strategy was developed by Joe Spurgeon, CIH, Ph.D., representing Federal Occupational Health (FOH). Sampling was performed by Dr. Spurgeon and field personnel from Aerosol Monitoring & Analysis, Inc. (AMA) during September 23 - 27, 1999. The objective of these samplings was to determine whether there are any surface fungal, especially for *Stachybotrys chartarum* (SC), contamination at the mechanical rooms and some selective occupied areas.

EVALUATION METHODOLOGY

Field Sampling

Vacuum Cassette Dust Sampling

Six (6) samples were collected from surfaces of carpet or partition panels. Specific sampling locations were selected by NOAA: areas 5112, 11112, and 17108. Samples were collected using open-face, 25-mm cassettes with 0.8 mm MCE filters attached with a high flow rate pump. According to AMA, samples were collected by placing the cassette open to the object (panel or carpet) and holding steadily for 1 minute (flow rate of 14L/min). All samples were sent to P & K Microbiology Services, Inc. (P & K) for analysis.

Swab Sampling

Three swab samples were collected from each mechanical room of each floor (floor 1 – 18) except for the 6th floor where only one sample was collected. One sample was collected from fresh air duct inside access panel, one from the filter bank ledge, and one from surfaces of the vortex motor duct-inside access.

Twelve (12) swab samples were collected from surfaces of supply diffusers and return troughers of selective areas of 5th, 11th, and 17th floors of this facility (Table 1). Sampling locations for occupied areas were similar to those for vacuum cassette samples. Sterilized swabs were used to wipe on surfaces of interest. According to AMA, the sampling area was approximately 4 in². All samples were sent to P & K for fungal analyses.

Table 1. Summaries of swab sampling locations at the occupied areas of SSMC-2, on September 23, 1999.

Building	Floor	Room #s	Total Sample Number
SSMC-2	17	17108, National Weather Library	4
SSMC-2	11	11112, 11301	4
SSMC-2	5	5112, 5301	4

Laboratory Procedures

Vacuum Cassette Dust Samples

According to P & K through a phone conversation, insufficient dust was collected for analysis. Therefore, the filter with trace dust collected was placed onto an agar plate filled with corn meal agar (CMA). Total fungal colonies formed on each CMA plate were counted and recorded.

Swab Samples

Each swab sample was processed through dilution plating onto malt extract agar (MEA) and CMA. Total fungal colonies formed on each plate were counted, recorded, and identified.

RESULTS AND DISCUSSION

All laboratory analytical results are presented in Attachment.

Vacuum Cassette Dust Samples

Stachybotrys chartarum was not detected from any of six samples collected. The interpretation of these vacuum cassette sample results is difficult. The reasons are three-fold: (1) only a small sample area (4.91 cm²) from surfaces of interest was collected, (2) insufficient amounts of dust were collected for analysis, and (3) no replications.

Swab Samples

Mechanical Rooms

One sample collected from the surface of the access panel from the fresh air supply on the 6th floor showed presence of *Stachybotrys chartarum* (100 CFU/swab on MEA). This is the only sample collected from the 6th floor, no other data are available for comparison.

In most mechanical rooms, the highest mean fungal level was detected from fresh air supply surfaces and the lowest fungal level was detected from the vortex fan duct areas (Table 2). Fungi detected from these swab samples, in a descending order, were: *Cladosporium*, yeast, *Alternaria*, *Aureobasidium*, *Rhodotorula*, and *Penicillium*.

Occupied Areas

Stachybotrys chartarum was not detected from any swab samples collected from occupied areas. Total fungal burden on surfaces of return troughers of control areas was not lower than that of concerned areas (Table 3).

Table 2. Mean surface fungal burden (CFU/swab) on various surfaces of mechanical rooms at SSMC-2 on September 23, 1999.

Location Floor	Fresh Air Supply – Access Panel	Filter Bank Ledge	Vortex Fan Duct
1	900	900	1,600
2	2,050	1,800	100
3	900	0	50
4	2,500	350	200
5	20,150	143,500	6,800
6	750	NA [#]	NA

7	139,400	1,900	12,950
8	272,650	754,400	1,750
9	174,250	100,450	2,100
10	229,600	3,550	1,700
11	385,400	147,600	4,700
12	120,950	588,350	100
13	332,100	102,500	239,850
14	8,800	55,350	5,850
15	262,400	1,800	500
16	16,300	1,350	0*
17	17,900	150	350
18	291,100	2,250	2,700

* MEA only.

Not available.

Table 3. Mean surface fungal burden (CFU/swab) on supply diffusers and return troughers collected from various floors at SSMC-2 on September 23, 1999.

Building	Condition	Rooms	Supply Diffusers	Return Troughers
SSMC-2	Control*	17108	380	460
SSMC-2	Control	11112	240	40
SSMC-2	Control	5112	160	40
SSMC-2	Concerned*	National Weather Library	1,000	40
SSMC-2	Concerned	11301	60	60
SSMC-2	Concerned	5301	40	160

* Concerned: Areas had water damage or mold growth according to NOAA.

Control: Areas where no water damage occurred as identified by NOAA.

CONCLUSIONS

Mechanical Rooms

Stachybotrys chartarum was detected from one of 52 swab samples collected from mechanical rooms. The positive sample was collected from the fresh air supply access panel of the 6th floor.

Occupied Areas

Using vacuum cassette samples, *Stachybotrys chartarum* was not detected from any samples collected. This fungus was not detected from any of the 12 swabs collected from occupied areas, either.

RECOMMENDATIONS

- Visually inspect the 6th floor mechanical room for signs of water leakage and/or reservoirs of *Stachybotrys chartarum*.

ATTACHMENT

Microbiological laboratory reports for samples collected

from building SSMC-2, on September 23 – 27, 1999

**All attachments can be retrieved from the Library
located on the Second Floor in SSMC 3**

OR

[Please click here to view attachments electronically](#)